



FCC/IC Test Report (BT-LE)

Report No.: RF130223E01H-3

FCC ID: PPD-QCNFA222

IC: 4104A-QCNFA222

Test Model: QCNFA222

Received Date: July 23, 2015

Test Date: July 29 to Aug. 03, 2015

Issued Date: Aug. 06, 2015

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Release Control Record

Issue No.	Description	Date Issued
RF130223E01H-3	Original release.	Aug. 06, 2015



1 Certificate of Conformity

Product: PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card

Brand: Qualcomm Atheros

Test Model: QCNFA222

Sample Status: ENGINEERING SAMPLE


Applicant: Qualcomm Atheros, Inc.

Test Date: July 29 to Aug. 03, 2015

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10: 2013
Canada RSS-247 Issue 1 (2015-05)
Canada RSS-Gen Issue 4 (2014-11)

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :  **Date:** Aug. 06, 2015
Midoli Peng / Specialist

Approved by :  **Date:** Aug. 06, 2015
May Chen / Manager

2 Summary of Test Results

APPLIED STANDARD: 47 CFR FCC Part 15, Subpart C (SECTION 15.247) ; RSS-247; RSS-Gen				
STANDARD SECTION		Test Item	Result	Remarks
FCC Clause	RSS-Gen RSS-247			
15.205 / 15.209 / 15.247(d)	RSS-247 5.5	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3.6dB at 166.54MHz.
15.247(b)	RSS-247 5.4 (4)	Conducted power	Pass	Meet the requirement of limit.

NOTE: 1. This report is prepared for FCC Class II change. Only Radiated Emissions and Band Edge and Conducted power Measurement were presented in this test report.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB
	6GHz ~ 18GHz	4.00 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (BT-LE)

Product	PCIE 802.11a/b/g/n 2.4GHz/5GHz + USB BT 4.0 card
Brand	Qualcomm Atheros
Test Model	QCNFA222
Status of EUT	ENGINEERING SAMPLE
Test Software Version	BtTest Jupiter.exe Version: V2.0.197
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	GFSK
Modulation Technology	DTS
Transfer Rate	Up to 1Mbps
Operating Frequency	2402MHz ~ 2480MHz
Number of Channel	40
Output Power	2.518mW
Antenna Type	See item 3.2
Antenna Connector	See item 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

- This report is prepared for FCC Class II change. The difference compared with the Report No.: RF130223E01 R1 design is as the following:
 - ◆ Create Single band SKU (FVIN AW-NB234NF) by disable 5GHz function with software. There is no Hardware change or depopulation of components in new Single band from original certified design.
 - ◆ Reactive 5GHz band to this Single band SKU is not accessible by end user once disable of 5GHz is programmed in modular factory. Software loading is a One Time Programmable(OTP) action that is performed in the factory
 - ◆ List antenna model: WA-F-LBLB-04-028 (same type and lower gain to original typical antenna) to this Single band SKU.
 - ◆ Add modular SAR in 5mm antenna to body distance to this Single band SKU.
- According to above conditions, Only Radiated Emissions and Band Edge and Conducted power Measurement were presented in this test report.
- There are Bluetooth technology and WLAN technology used for the EUT.
- The EUT support multiple function, therefore the WLAN OFDM will be cover BT OFDM (low power) scenario.
- The power setting are list as below:

Modulation Mode	Frequency (MHz)	Power Setting	Frequency (MHz)	Power Setting	Frequency (MHz)	Power Setting
GFSK	2402	default	2440	default	2480	default

- This device support the power back off for WLAN/BT coexist mode. The WiFi output power will reduce to 10.5dBm from Maximum power in 802.11n HT20 (2TX) mode of 2.4GHz when WLAN and BT simultaneously transmission.

7. The emission (radiated emission) of the simultaneous operation (WiFi & Bluetooth) has been evaluated and no non-compliance found. The detail combinations of transmitters / frequencies / modes as below table

Mode	Available Channel	Tested Channel	Modulation Technology
802.11g + Bluetooth (8DPSK)	1 to 11	6	OFDM
	0 to 78	78	FHSS

8. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Ant. No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
1	Main	INPAQ	WA-F-LBLB-04-028	PIFA	2.38	-0.47	IPEX MHF	143
	Aux	INPAQ	WA-F-LBLB-04-028	PIFA	2.30	-0.47	IPEX MHF	143

Note: 1. Above antenna gains of antenna are Total (H+V).

3.3 Description of Test Modes

40 channels are provided to this EUT:

CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)	CHANNEL	FREQ. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.3.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE≥1G	RE<1G	APCM	
-	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

NOTE: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Z-plane.

Radiated Emission Test (Above 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
0 to 39	0, 19, 39	GFSK	1

Radiated Emission Test (Below 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
0 to 39	39	GFSK	1

Antenna Port Conducted Measurement:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE (Mbps)
0 to 39	0, 19, 39	GFSK	1

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE≥1G	23deg. C, 69%RH	120Vac, 60Hz	Robert Cheng
RE<1G	24deg. C, 66%RH	120Vac, 60Hz	Robert Cheng
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

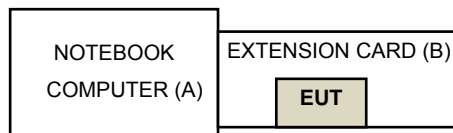
3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	DELL	E6420	H62T3R1	FCC DoC	Provided by Lab
B	EXTENSION CARD	Qualcomm Atheros	NA	NA	NA	Supplied by Client

NOTE: All power cords of the above support units are non-shielded (1.8 m).

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)
558074 D01 DTS Meas Guidance v03r02
Canada RSS-247 Issue 1 (2015-05)
Canada RSS-Gen Issue 4 (2014-11)
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

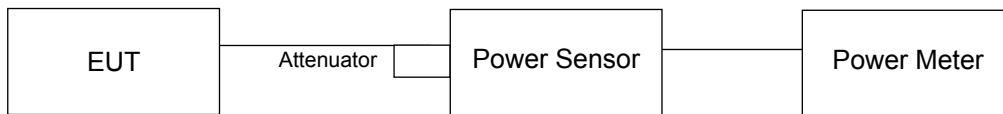
4 Test Types and Results

4.1 Conducted Output Power Measurement

4.1.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

4.1.2 Test Setup



4.1.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016

- NOTE:**
1. The test was performed in Oven room B.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. Tested Date: Aug. 03, 2015

4.1.4 Test Procedures

A peak / average power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak / average power sensor. Record the power level.

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 Test Results

FOR PEAK POWER

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
0	2402	2.094	3.21	30	Pass
19	2440	2.301	3.62	30	Pass
39	2480	2.518	4.01	30	Pass

FOR AVERAGE POWER

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	2.014	3.04
19	2440	2.213	3.45
39	2480	2.432	3.86

4.2 Radiated Emission and Bandedge Measurement

4.2.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 09, 2015	Feb. 08, 2016
RF Cable	8D-FB	CHHCAB-001-1 CHHCAB-001-2	Oct. 05, 2014	Oct. 04, 2015
	RF-141	CHHCAB-004	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Feb. 06, 2015	Feb. 05, 2016
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	Jun. 26, 2015	Jun. 25, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. H.
3. The FCC Site Registration No. is 797305.
4. The CANADA Site Registration No. is IC 7450H-3.
5. Tested Date: July 29, 2015

4.2.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

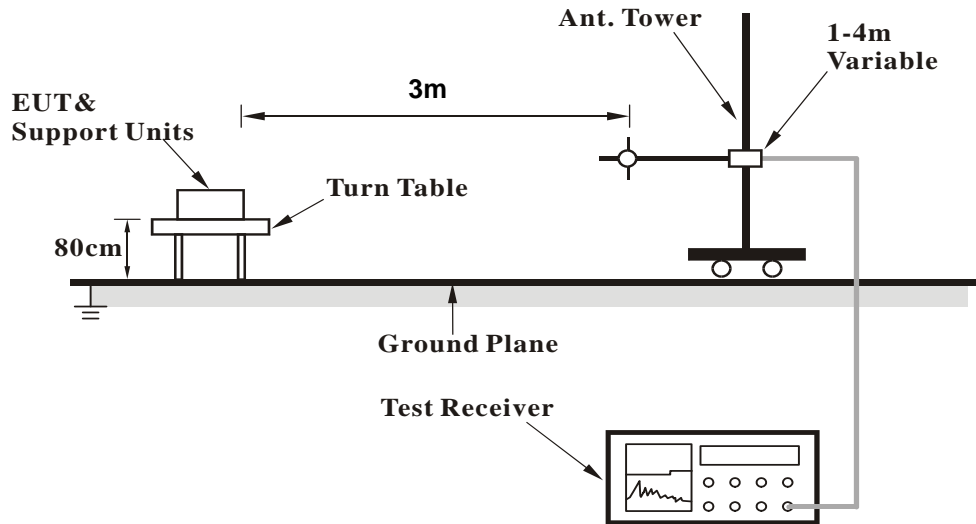
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

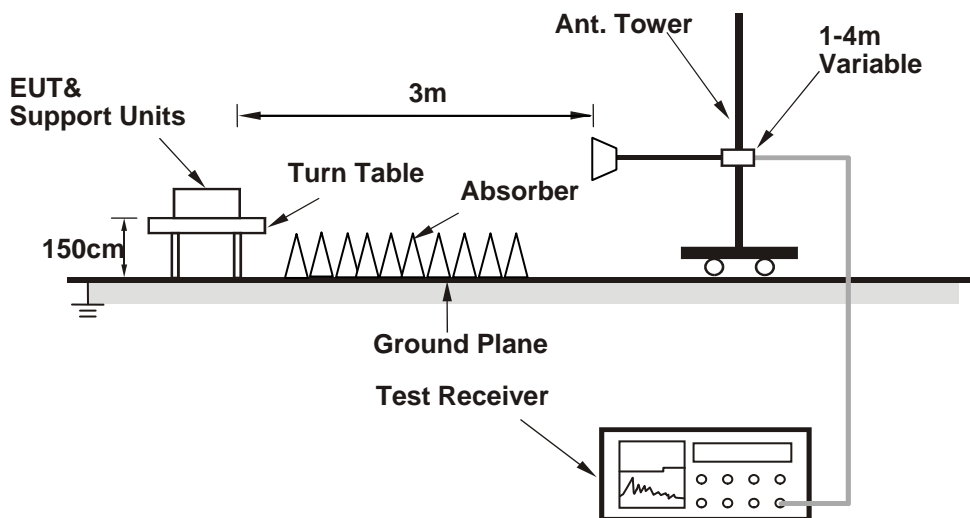
No deviation.

4.2.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program "BtTest Jupiter.exe Version: V2.0.197" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.2.7 Test Results

Above 1GHz Data:

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2322.00	52.2 PK	74.0	-21.8	1.05 H	332	55.55	-3.35
2	2322.00	45.3 AV	54.0	-8.7	1.05 H	332	48.65	-3.35
3	2390.00	47.2 PK	74.0	-26.8	1.05 H	332	50.39	-3.19
4	2390.00	34.4 AV	54.0	-19.6	1.05 H	332	37.59	-3.19
5	*2402.00	98.1 PK			1.05 H	332	101.26	-3.16
6	*2402.00	96.8 AV			1.05 H	332	99.96	-3.16
7	4804.00	45.5 PK	74.0	-28.5	1.18 H	91	39.56	5.94
8	4804.00	34.1 AV	54.0	-19.9	1.18 H	91	28.16	5.94

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2322.00	53.7 PK	74.0	-20.3	1.00 V	270	57.05	-3.35
2	2322.00	46.2 AV	54.0	-7.8	1.00 V	270	49.55	-3.35
3	2390.00	47.0 PK	74.0	-27.0	1.00 V	270	50.19	-3.19
4	2390.00	34.7 AV	54.0	-19.3	1.00 V	270	37.89	-3.19
5	*2402.00	98.7 PK			1.00 V	270	101.86	-3.16
6	*2402.00	97.4 AV			1.00 V	270	100.56	-3.16
7	4804.00	46.4 PK	74.0	-27.6	1.04 V	225	40.46	5.94
8	4804.00	35.1 AV	54.0	-18.9	1.04 V	225	29.16	5.94

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 19	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2361.00	52.9 PK	74.0	-21.1	1.04 H	340	56.16	-3.26
2	2361.00	45.9 AV	54.0	-8.1	1.04 H	340	49.16	-3.26
3	*2440.00	96.8 PK			1.04 H	340	99.83	-3.03
4	*2440.00	95.1 AV			1.04 H	340	98.13	-3.03
5	4880.00	45.9 PK	74.0	-28.1	1.19 H	93	39.85	6.05
6	4880.00	34.4 AV	54.0	-19.6	1.19 H	93	28.35	6.05
7	7320.00	50.6 PK	74.0	-23.4	1.00 H	319	39.60	11.00
8	7320.00	39.9 AV	54.0	-14.1	1.00 H	319	28.90	11.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2361.00	55.9 PK	74.0	-18.1	1.03 V	273	59.16	-3.26
2	2361.00	48.9 AV	54.0	-5.1	1.03 V	273	52.16	-3.26
3	*2440.00	97.5 PK			1.03 V	273	100.53	-3.03
4	*2440.00	95.8 AV			1.03 V	273	98.83	-3.03
5	4880.00	46.1 PK	74.0	-27.9	1.00 V	212	40.05	6.05
6	4880.00	34.6 AV	54.0	-19.4	1.00 V	212	28.55	6.05
7	7320.00	50.7 PK	74.0	-23.3	1.42 V	100	39.70	11.00
8	7320.00	39.9 AV	54.0	-14.1	1.42 V	100	28.90	11.00

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	96.1 PK			1.02 H	333	98.98	-2.88
2	*2480.00	94.4 AV			1.02 H	333	97.28	-2.88
3	2483.50	47.0 PK	74.0	-27.0	1.02 H	333	49.87	-2.87
4	2483.50	34.6 AV	54.0	-19.4	1.02 H	333	37.47	-2.87
5	4960.00	46.4 PK	74.0	-27.6	1.24 H	92	40.36	6.04
6	4960.00	35.0 AV	54.0	-19.0	1.24 H	92	28.96	6.04
7	7440.00	50.2 PK	74.0	-23.8	1.00 H	315	38.47	11.73
8	7440.00	39.5 AV	54.0	-14.5	1.00 H	315	27.77	11.73

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	96.8 PK			1.03 V	258	99.68	-2.88
2	*2480.00	95.1 AV			1.03 V	258	97.98	-2.88
3	2483.50	47.6 PK	74.0	-26.4	1.03 V	258	50.47	-2.87
4	2483.50	39.2 AV	54.0	-14.8	1.03 V	258	42.07	-2.87
5	4960.00	46.0 PK	74.0	-28.0	1.00 V	219	39.96	6.04
6	4960.00	34.6 AV	54.0	-19.4	1.00 V	219	28.56	6.04
7	7440.00	50.5 PK	74.0	-23.5	1.37 V	113	38.77	11.73
8	7440.00	39.8 AV	54.0	-14.2	1.37 V	113	28.07	11.73

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Below 1GHz Data:

CHANNEL	TX Channel 39	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	88.41	34.2 QP	43.5	-9.3	1.24 H	304	53.11	-18.87
2	166.54	39.9 QP	43.5	-3.6	1.42 H	301	53.12	-13.23
3	233.41	35.5 QP	46.0	-10.6	1.64 H	311	50.14	-14.69
4	373.41	38.2 QP	46.0	-7.8	1.42 H	241	48.47	-10.23
5	624.41	36.3 QP	46.0	-9.7	1.67 H	100	40.69	-4.35
6	697.34	37.4 QP	46.0	-8.6	1.24 H	111	40.80	-3.39

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.70	32.4 QP	40.0	-7.6	1.00 V	320	47.27	-14.89
2	72.00	29.1 QP	40.0	-11.0	1.00 V	274	44.92	-15.87
3	89.56	31.6 QP	43.5	-12.0	1.00 V	286	50.46	-18.91
4	166.58	33.7 QP	43.5	-9.8	1.00 V	38	46.94	-13.23
5	374.35	34.4 QP	46.0	-11.6	1.00 V	333	44.64	-10.22
6	697.07	34.8 QP	46.0	-11.2	1.00 V	279	38.17	-3.39

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).



Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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